

## ABSTRACT

A multi-station RF thermometer and alarm system measures temperatures and/or percent relative humidity at remote locations by RF weather stations, and displays received temperature and/or other weather data telemetry on a multi-station base station that provides out-of-bounds 5 alarm signal indications whenever temperatures are outside of user-selectable minimum and maximum values. Randomized transmission times in one embodiment and two-phase unique transmission schedules in another lessen the possibility of on-going collisions between two or more transmitters contending for the base station at the same time. Redundant data transmission lessens the possibility of environmental noise interference. The redundant data, transmitted at random 10 times in one embodiment, includes a unique channel ID code, house-keeping data, the current temperature and/or time-to-next-transmission data, and in another embodiment, transmitted at uniquely prescheduled times of two-phase transmission schedules, includes station location ID and transmission schedule phase. The weather parameter sensing transmitters operate at a low duty 15 cycle with low peak current consumption resulting in long battery life. The multi-station base station may be AC- or battery-powered. Channel and station ID switches are provided on the remote temperature sensing transmitters and on the multi-station base station in one embodiment and a station ID number selection switch is provided in another transmitter embodiment.